Amendments to the Claims

Claims 1, 5 and 11 have been amended. Claims 2 and 4 have been canceled without prejudice. Claims 7 and 14 have been withdrawn from consideration. This claim listing replaces all previous versions.

1. (Currently Amended) A method for suppressing pathological calcification of the meniscal and articular cartilage matrix, comprising:

contacting the cartilage matrix of the subject with an inhibitor of ~~inhibiting~~ activation and/or activity of zymogen factor (FXIIIa) and tissue transglutaminase (tTGase) in chondrocytes of the cartilage matrix, thereby suppressing pathological calcification in the cartilage matrix.

2. (Cancelled) The method according to claim 1, wherein the inhibition of activation is accomplished by blocking production of a member selected from the group consisting essentially of interleukins IL-I, IL-8, nitric oxide donor Noc-12, peroxynitrite generator Sin-1, tumor necrosis factor α (TNFα), and S100 family of proteins.

3. (Previously Presented) The method according to claim 1, wherein the inhibition of activation is accomplished by blocking TNFα receptor-associated signaling factors (TRAFs), TRAF2 and TRAF6.

4. (Cancelled) The method according to claim 3, wherein the inhibition is accomplished by expressing A20 in chondrocytic cells.

5. (Currently Amended) A method for inhibiting TGase activity of zymogen Factor XIIIa (FXIIIa) and/or tissue transglutaminase (tTGase) in a chondrocyte, comprising contacting the chondrocyte with an effective amount of an inhibitor ~~that inhibits tTGase and/or FXIIIa~~ of a

TNFα receptor-associated signaling factor (TRAF), thereby inhibiting TGase activity of zymogen Factor XIIIa (FXIIIa) and/or tissue transglutaminase (tTGase) in the chondrocyte.

6. (Previously Presented) The method of claim 5, wherein the inhibitor is an inhibitor of IL-1, Noc-12, Sin-1, tumor necrosis factor a (TNFα), and/or TNFα receptor-associated signaling factor (TRAFs), TRAF2 and TRAF6.

7. (Withdrawn) The method of claim 5, wherein the inhibitor is a polynucleotide that inhibits tTGase or FXIIIa expression.

8. (Previously Presented) The method of claim 5, wherein the method is performed *in vitro*.

9. (Previously Presented) The method of claim 5, wherein the method is performed *in vivo*.

10. (Previously Presented) The method of claim 9, wherein the chondrocyte is from a chondrocyte-derived cell line.

11. (Currently Amended) A method for identifying an agent that inhibits ~~affects~~ matrix calcification, comprising contacting a chondrocyte *in vitro* with a test agent under conditions for inducing matrix calcification, wherein the chondrocyte expresses zymogen factor XIIIa (FXIIIa) and/or tissue transglutaminase (tTGase); and

determining the effect of the test agent on activation and/or activity of zymogen factor (FXIIIa) and tissue transglutaminase (tTGase) in chondrocytes of the cartilage matrix ~~calcification~~, wherein inhibition of activation and/or activity is indicative of a test agent ~~an effect on matrix calcification identifies the test agent as an agent~~ that inhibits ~~affects~~ matrix calcification.

12. (Previously Presented) The method of claim 11, wherein the chondrocyte is transfected with a TGase expression vector for expressing zymogen factor FXIIIa or tTGase.

13. (Previously Presented) The method of claim 12, wherein the chondrocyte is from a chondrocyte-derived cell line.

14. (Withdrawn) The method of claim 11, wherein the conditions for inducing matrix calcification include contacting the chondrocyte with an agent that activates and/or increases activity of zymogen factor FXIIIa and/or tissue transglutaminase (tTGase), wherein the agent affects the activity of IL-1, Noc-12, Sin-1, and/or tumor necrosis factor a (TNFα).

15. (Previously Presented) The method of claim 11, wherein the test agent is a nitric oxide synthase (NOS) inhibitor.